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Claims

1   1.   A computer based system employing a

2   customizable Simulation Model of an ATM/SONET Framer, for

3   system level verification and performance

4   characterization, comprising:

5   means for developing an accurate customizable

6   behavioral model that offer sufficient parameters which

7   can be programmed to represent Framers from different

8   vendors;

9   means for providing two independently configurable

10   components, a Receiver and a Transmitter,

11   and

12   which provide testing with said multiple vendors of

13   Framers, by changing programmable parameters of said

14   model.

1   2.   The system of claim 1 wherein said ATM/SONET Framer

2   provides Receiver and one Transmit interface to the

3   network at a SONET line rate of 155.52 Mbps(OC-3), 622.08

4   Mbps(OC-12) and 2488.32 Mbps(OC-48).

1   3.   The system of claim 1 wherein said ATM and said

2   SONET interfaces operate on different clock frequencies

3   and represent two distinct clock domains,

4   and

5   the data interchange between the two said clock

6   domains is achieved by means of FIFO buffer elements and

7   associated control and status signals.

1   **4.**   The system of claim 1 solves problems of

2   observability and controllability, due to constrains

3   stemming from the protection of proprietary data.

1   **5.**   The system of claim 4 wherein said solution to said

2   problems of observability and controllability, is to

3   develop an accurate customized behavioral model,

4   and

5   said model offering sufficient parameters which can

6   be programmed to represent Framers of different vendors.

1   **6.** The system of claim 4 which in addition, offers

2   programmability, rich feature set, and two independently

3   configurable models, one each for said transmit side and

4   said receive side,

5   and

6   offers said programmability features of:

7   •   SONET line rates (OC-Nc: N=1..48; OC-1=51.48

8   Mbps)

9   •   Percentage of data bytes vs. overhead bytes

10   per row

11   •   Delays associated with clock domain

12 synchronization

13   •   FIFO depth and threshold (in terms of number of

14   cells)

15   •   Byte or word count threshold within a cell

16   associated with FIFO status update

17   •   UTOPIA Level-2/3

18   •   Built-in performance checking

1   7.   A computer based method employing a customizable

2   Simulation Model of an ATM/SONET Framer, for system level

3   verification and performance characterization, comprising

4   the steps of:

5   developing an accurate customizable behavioral model

6   that offer sufficient parameters which can be programmed

7   to represent Framers from different vendors;

8   providing two independently configurable components,

9   a Receiver and a Transmitter,

10   and

11   which provide testing with said multiple vendors of

12   Framers, by changing programmable parameters of said

13   model.

1   8.   The method of claim 7, which in addition includes

2   the steps of:

3   said ATM/Sonet Framer provides Receiver and one

4   Transmit interface to the network at a SONET line rate of

5   155.52 Mbps(OC-3), 622.08 Mbps(OC-12) and 2488.32

6   Mbps(OC-48).

1 **9.** The method of claim 7 wherein said ATM and said

2 SONET in interfaces, operate on different clock

3 frequencies and represent two distinct clock domains,

4 and

5 data interchange between the two said clock domains

6 is achieved by means of FIFO buffer elements and

7 associated control and status signals.

1 **10.** The method of claim 7 solves problems of

2 observability and controllability, due to constraint

3 stemming from the protection of proprietary data.

1 **11.** The method of claim 10 wherein said solution to said

2 problems of observability and controllability, further

3 includes the steps of:

4 develop an accurate customized behavioral model,

5 and

6 said model offering sufficient parameters which can

7 be programmed to represent Framers of different vendors.

1 **12.** The method of claim 10 which in addition, offers

2 programmability, rich feature set, and two independently

3 configurable models, one each for said transmit side and

4 said receive side,

5 and

6   offers said programmability features of:

7   •   SONET line rates (OC-Nc: N=1..48; OC-1=51.48

8   Mbps)

9   •   Percentage of data bytes vs. overhead bytes

10   per row

11   •   Delays associated with clock domain

12 synchronization

13   •   FIFO depth and threshold (in terms of number of

14   cells)

15   •   Byte or word count threshold within a cell

16   associated with FIFO status update

17   •   UTOPIA Level-2/3